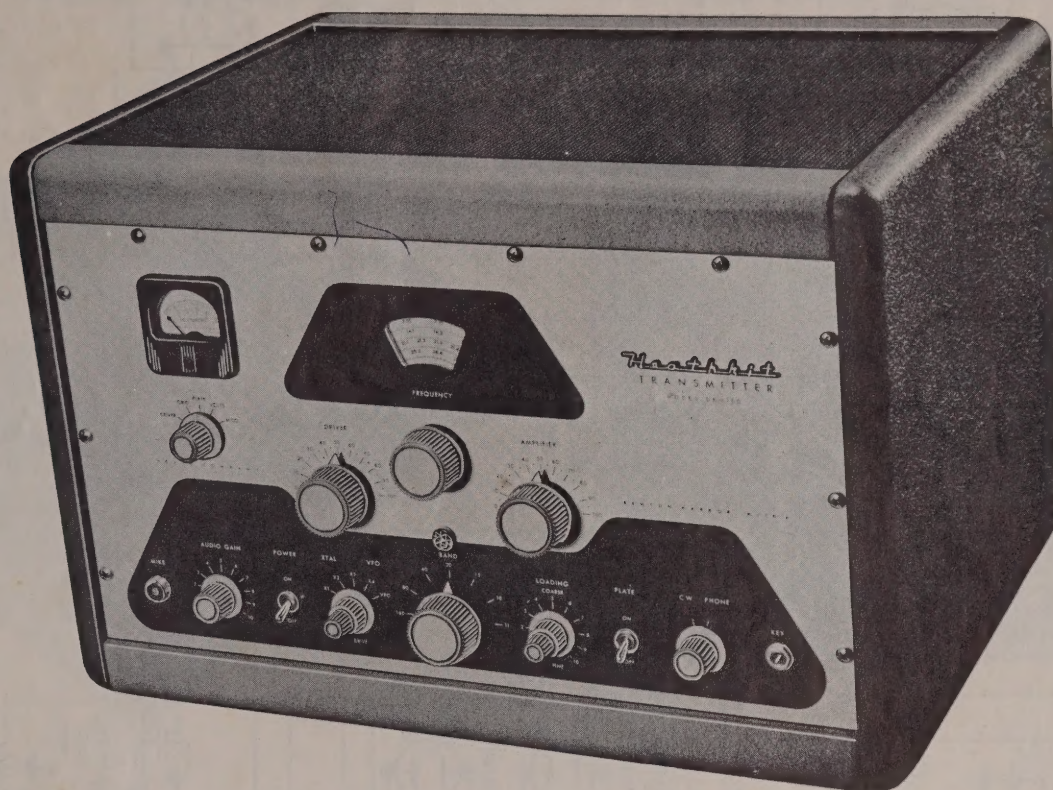


# HEATHKIT TRANSMITTER

## MODEL DX-100



### SPECIFICATIONS

RF Power Output.....	100-125 watts phone, 120-140 watts CW
Output Impedance.....	50-600 $\Omega$ (non-reactive)
Output Coupling.....	Pi network (coaxial)
Operation.....	Crystal-VFO, CW-Phone, Local-Remote
Band Coverage.....	160, 80, 40, 20, 15, 11, 10
Audio Output.....	85 watts at 300-3000 cycles
Tube Complement:	
Power Section.....	6AL5 bias rectifier 5V4 low voltage rectifier 2 - 5R4GY high voltage rectifier OA2 regulator
Audio Section.....	12AX7 speech amplifier 12BY7 audio driver 2 - 1625 modulator
RF Section.....	6AU6 VFO 12BY7 crystal oscillator-buffer 5763 driver 2 - 6146 parallel power amplifier 6AQ5 clamp
Power Requirements.....	115 volts AC, 50 to 60 cycles
Standby.....	150 watts
CW.....	400 watts (intermittent)
Phone.....	450-600 watts
Cabinet Size.....	20 7/8" wide x 13 3/4" high x 16" deep
Net Weight.....	100 lbs.
Shipping Weight.....	107 lbs.

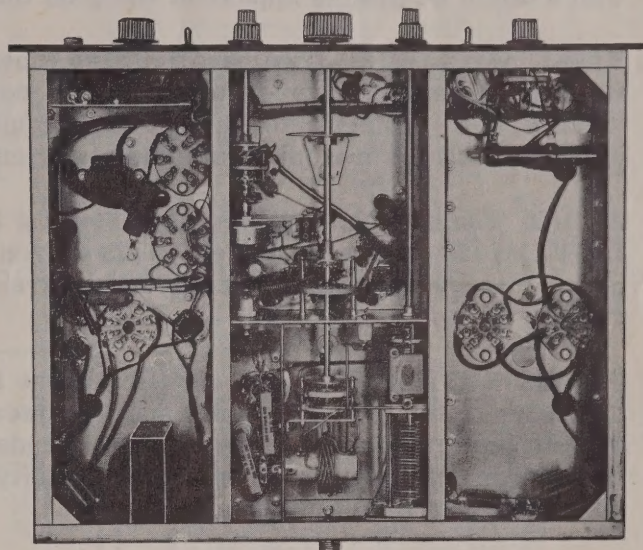
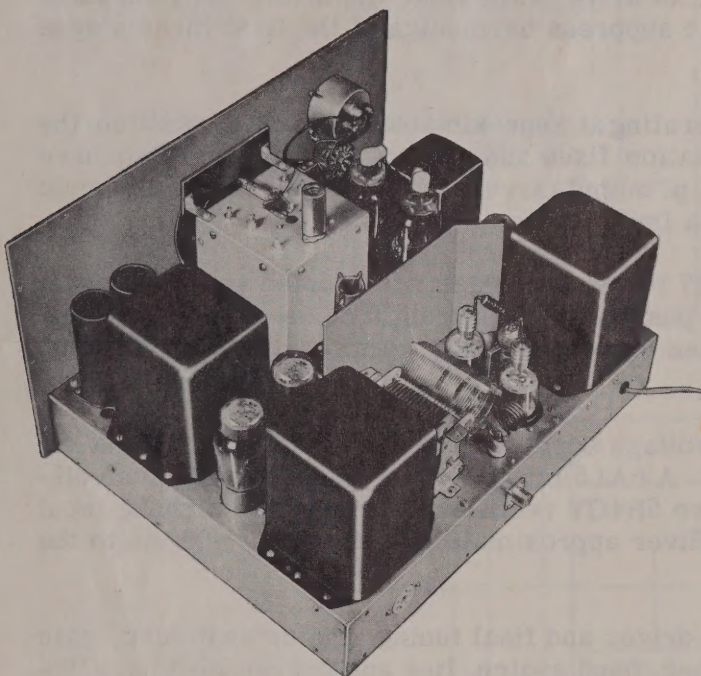






## PHYSICAL DESCRIPTION

**ASSEMBLY:** Top chassis view showing "potted" transformers, shielded and illuminated meter, completely enclosed VFO and final shield. Note use of ceramic plate caps on modulator tubes for safety and heat dissipating plate caps on final amplifiers for long tube life. Chassis is constructed of 16 gauge (approximately 1/16" thick) steel, copper plated, making an extremely strong unit.



Sectional framing of chassis (shown in bottom view) isolates power, audio and RF circuits and contributes to chassis rigidity. This view shows low voltage power supply and audio on the left, low power RF stages at center front and the output pi network circuit at center rear. The high voltage supply is on the right. Note the use of ceramic tube sockets and switches.

**CABINET:** The DX-100 cabinet represents a novel innovation in cabinetry, in that a cabinet of this size and type is supplied completely disassembled. This feature permits a considerable saving in cabinet cost. Upon assembling, the cabinet joints interlock, thus making a very rigid and well shielded assembly. The cabinet has a two-tone crackle finish and adequate ventilation.

## ELECTRICAL CHARACTERISTICS

**VFO:** The VFO consists of a 6AU6 tube operating as an electron coupled Clapp oscillator in the frequency ranges of 1750-2000 kc, 7000-7425 kc and 6740-6807.5 kc. The coils are wound on heavy ceramic forms for stability and have temperature compensating capacitors associated with them. The main tuning and trimmer capacitors feature ceramic insulation. A double bearing differential tuning capacitor provides a large degree of band spread on all frequencies as follows:

1750-2000 kc = 4"  
3500-4000 kc = 5"  
7000-7300 kc = 4 1/2"  
14.000-14.350 mc = 2 1/4"

21.000-21.450 mc = 1 3/4"  
26.960-27.230 mc = 1 1/8"  
28.000-29.700 mc = 4"

The VFO may be zero beat with an incoming signal without placing the transmitter on the air. The screen of the VFO tube is regulated at 150 volts by an OA2 tube and all of the tuned circuits are completely shielded.



**OSCILLATOR:** A 12BY7 tube operates as the crystal oscillator in a Colpitts circuit when using crystal control. Four crystal positions or VFO excitation are available by means of a front panel control switch (crystals not supplied). When in VFO position the 12BY7 operates as a buffer-doubler, either untuned or broad banded. It is capacity coupled to the 5763 driver stage.

**DRIVER:** A 5763 tube with variable screen voltage and fixed bias furnishes the grid drive to the final amplifier. The fixed bias keeps the tube cut off during standby or key-up conditions and the adjustable screen voltage controls the amount of drive to the final amplifier. Pi interstage coupling between the driver and the final helps to suppress harmonics of the first three stages which might otherwise appear at the final output.

**FINAL AMPLIFIER:** Two parallel 6146 tubes operating at approximately 740 volts constitute the final amplifier. The tubes operate with combination fixed and automatic bias and also have "clamp tube" protection of the screen circuit. A pi output circuit further suppresses harmonic output and allows matching to a variety of antenna impedances.

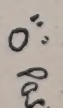
**AUDIO:** The speech amplifier consists of a 12AX7 two stage resistance coupled amplifier and a 12BY7 triode connected driver. This drives two push-pull 1625 tubes in class AB2. The modulator and speech amplifier components are chosen to limit the audio to approximately 300-3000 cps.

**POWER SUPPLIES:** A 5V4 rectifier in the low voltage supply delivers 360 volts at 150 ma for operation of the low level audio and RF circuits. A 6AL5 bias rectifier supplies negative voltages to the driver, modulator and final grids. Two 5R4GY rectifiers working into a choke input filter with 60 microfarads of output capacity, deliver approximately 740 volts at 400 ma to the modulator and final amplifier tubes.

**CONTROLS:** Front panel controls include VFO, driver and final tuning, meter switching, gain control, drive level control, crystal-VFO switching, band switch, fine and coarse loading, CW-phone switch and power and plate switches. In addition, a control socket on the rear apron of the chassis allows remote operation of the plate switch, furnishes 110 volts AC for operation of antenna and/or receiver muting relays and makes audio output available to drive higher power modulators. Also, there is a screwdriver adjustment of the clamp tube threshold behind the panel.

The DX-100 is priced complete and includes all tubes, cabinet and power supplies (crystals, mike and key are not included).





SCHEMATIC MODEL, DX-100







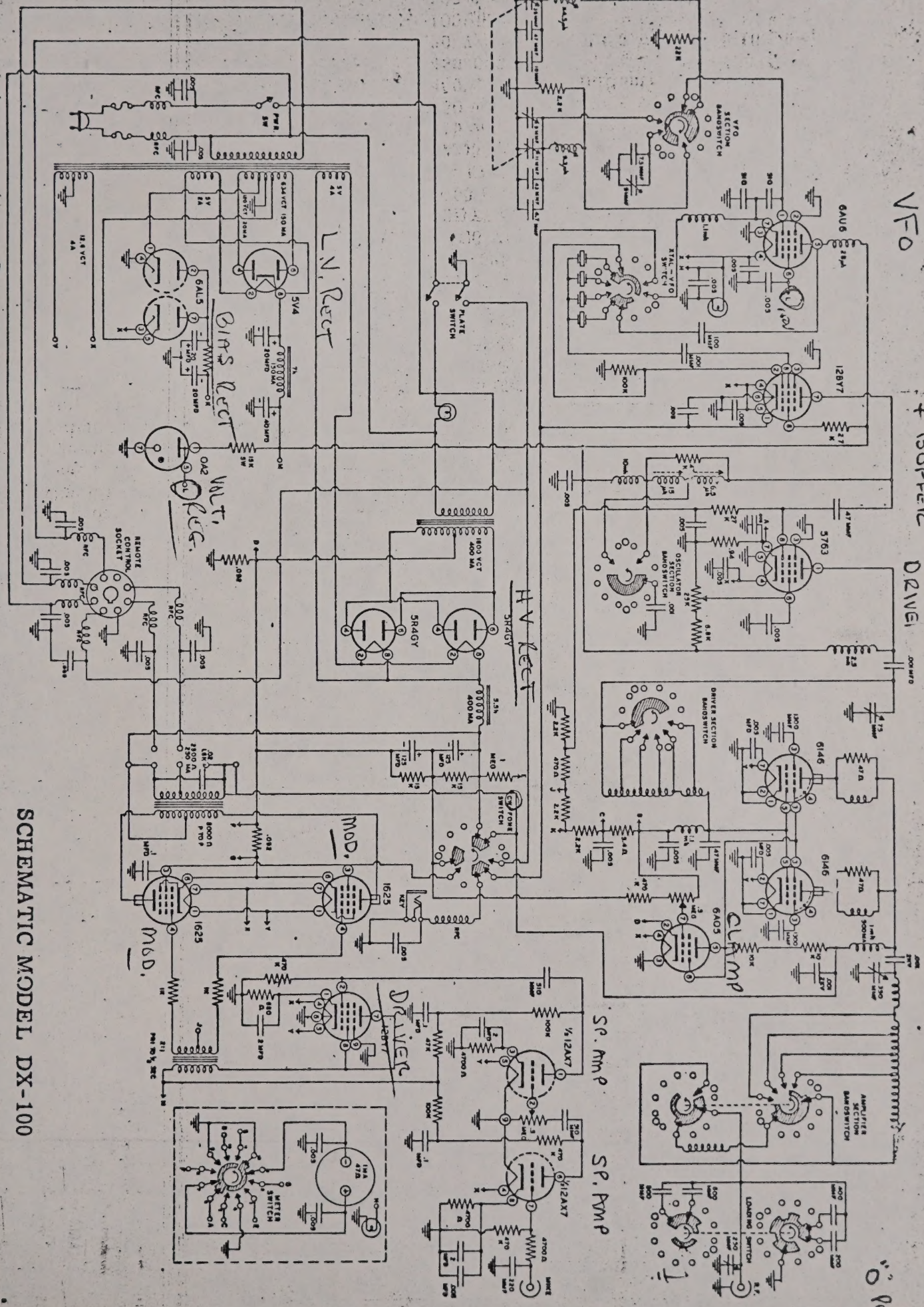
VFO  
XTAL OSC  
+ BUFFER

DRIVE

S.P. AMP

S.P. AMP

10 pas



SCHEMATIC MODEL DX-100



